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Results and Conclusions

Broadband electromagnetic technology (BEM) is a direct assessment tool using eddy current. GTI began testing the BEM unit and found that new spacers for the FEU were needed. A minor software problem was found when using the BEM unit after sending data to Rock Solid and a calibration plate was obtained from Rock Solid.

The ten pipes selected for inspection and validation of the BEM system were cut, metallurgically mounted, polished and etched to identify the materials. Positive identification is necessary for the BEM system of analysis. The BEM tool is capable of scanning cast iron, ductile iron and carbon steel in a wide range of wall thicknesses. Different ferrous metals have different "signatures" that require different setting and calibrations of the HSK instrument. The BEM system is a comparative process and the instrument is calibrated for a range of pipe types and thicknesses. The differences in metallurgical structure of the cast iron, ductile iron and carbon steel are very important. If the basic pipe type information is not keyed into the tool correctly the real-time processing software will analyze the captured data against incorrect parameters resulting in the generation of incorrect field screen displays.

Plans for Future Activity

Enhancement of BEM system

GTI is developing the plans for a second generation model of the FEU. GTI is working with Mathey-Dearman to modify an existing pipe cutting saddle machine "motorized Super II". Cost estimates and design changes are underway.

GTI will continue laboratory testing of the BEM system on pipes with both machined and naturally occurring flaws. GTI will also identify and evaluate the various components of the FEU and its ability to check pipe diameters of various sizes.

Perform Field Evaluations

The field trials will be conducted after laboratory examination of the enhanced unit. The field trials will demonstrate and further evaluate the upgrades to the BEM unit. Field sites will be finalized with OTD sponsoring utilities. A field demonstration schedule will also be determined. Field demonstrations will be initiated.

Respectfully Submitted,

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End of Report